

# COVID-19 Infection Survey

**Antibody and vaccination data for Northern Ireland**

23<sup>rd</sup> November 2021

# Likelihood of testing positive for COVID-19 antibodies in Northern Ireland

## About this analysis

This analysis is based on blood test results taken from a randomly selected subsample of individuals aged 16 years and over from the Coronavirus (COVID-19) Infection Survey, which are used to test for antibodies against SARS-CoV-2. This can be used to identify individuals who have had the infection in the past or have developed antibodies as a result of vaccination. These statistics refer to the presence of antibodies to the Coronavirus (COVID-19) within the community population, by which we mean private households. These figures exclude those in hospitals, care homes and/or other communal establishments.

The presence of antibodies in people in private households is measured to understand who has had coronavirus (COVID-19) in the past, and the impact of vaccinations. It takes between two and three weeks after infection or vaccination for the body to make enough antibodies to fight the infection. Antibodies can help prevent individuals from getting the same infection again, or if they do get infected, they are less likely to have severe symptoms. Once infected or vaccinated, antibodies remain in the blood at low levels and can decline over time. The length of time antibodies remain at detectable levels in the blood is not fully known.

Antibody positivity is defined by a fixed concentration of antibodies in the blood. A negative test result will occur if there are no antibodies or if antibody levels are too low to reach this threshold at the time of testing. Following infection or vaccination, antibody levels can vary and sometimes increase but can still be below the level identified as “positive” in our test, and other tests, and so give a negative result.

Most people who are vaccinated will retain a higher antibody level than before vaccination even after dropping below the standard threshold value. A negative result does not mean that antibody level is at zero, nor that a person has no protection against COVID-19, as an immune response does not rely on the presence of antibodies alone.

There are other parts of the immune system which will offer protection, for example a person’s T cell response. This will not be detected by blood tests for antibodies. [A person's immune response](#) is affected by a number of factors, including health conditions and age.

Equally, antibody levels are expected to decrease over time irrespective of vaccination or natural infection, especially when exposure to the virus is reduced. This is because our bodies stop making antibodies when they are not needed.

The ONS [blog on antibodies and immunity](#) gives further information on the link between antibodies and immunity and the vaccine programme. The blogs on [vaccine effectiveness](#) provide information on the effectiveness of vaccinations against [Alpha and Delta variants](#), which is based upon the research conducted by partners from the University of Oxford.

Weekly modelled estimates are produced using standard calendar weeks starting Monday. To provide the most timely and accurate estimates possible for antibody positivity, the model will include data for the first four to seven days of the most recent week available, depending on the availability of test results. Data since 7<sup>th</sup> December 2020 has been presented.

For context, estimates on the percentage of people who reported they have received at least one or more doses of a vaccine, as well as those who report to having received two or more doses of a COVID-19 vaccine (including booster doses) are included. The estimates of the percentage of people vaccinated are based on modelling of the people visited in the COVID-19 Infection Survey in the community in a particular time period. Data presented relates to the percentage of people aged 16 years and over who report they have received one or more doses of a COVID-19 vaccine since 14 December 2020, and the percentage of people aged 16 years and over who report they have received two or more doses since 15 February 2021. The data include any reported booster or third jabs.

However, these estimates are likely to be different from official figures given through administrative data systems. While the daily [official government figures](#) provide the recorded actual numbers of vaccines against COVID-19, the vaccination estimates presented here are based on a sample survey of reported vaccine status and are provided for context alongside the antibodies estimates. Importantly, the survey collects information from the population living in private households and does not include people living in communal establishments such as care homes, hospitals or prisons. The value of showing the estimates of vaccines alongside the estimates of people testing positive for antibodies is to illustrate the relationship between the two.

Differences between official figures and the estimates from this survey differ in scale across each of the four nations (some survey estimates are closer to the official reported figures than others) due to differences in reporting dates and the inclusion of National Immunisation Management System (NIMS) data for England. In addition, the sampling method for Northern Ireland is different to the other nations, inviting only people that have previously participated in a Northern Ireland Statistics and Research Agency (NISRA) survey, which could result in a sample of individuals that are more likely to get vaccinated. This should be taken into consideration if comparing vaccine and antibody estimates across the four nations, as vaccine status and antibody positivity are related. Further information on Northern Ireland vaccination figures is available from the [NI COVID-19 Vaccinations Dashboard](#). As analysis develops, the survey-based estimates will enable possible future analysis of people who have received a vaccine with other characteristics collected in the survey.

Modelled estimates of antibody positivity and vaccination estimates are presented for Northern Ireland along with the headline estimates for England, Wales and Scotland.

*This antibody and vaccination publication will be produced fortnightly and the information contained in it will be published simultaneously by the Office for National Statistics in a UK antibody report on their own website [Coronavirus \(COVID-19\) Infection Survey antibody data for the UK](#). Further information on the method to model antibodies can be found in the updated [methods article](#) from ONS.*

## Antibody data for Northern Ireland

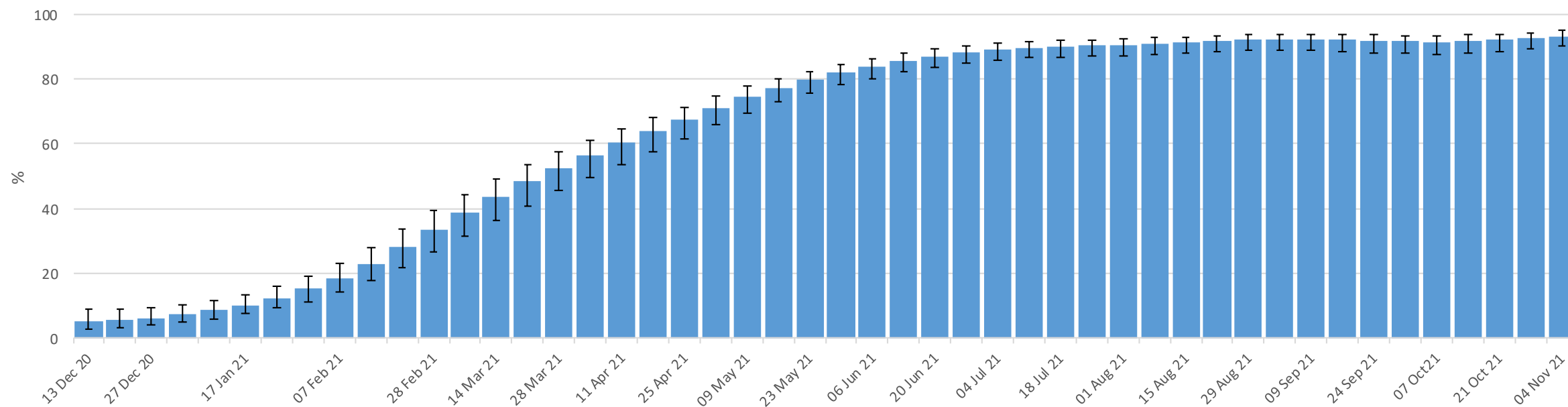
In Northern Ireland, it is estimated that 93.3% of the adult population (95% credible interval: 90.2% to 94.9%) would have tested positive for antibodies against SARS-CoV-2 on a blood test in the week beginning 1<sup>st</sup> November 2021, suggesting they had the infection in the past or have been vaccinated. The data in figure 1 below are presented in Appendix 1.

*In the data used to produce these estimates, the number of people sampled in Northern Ireland who tested positive for antibodies to SARS-CoV-2 is low compared with England. This means there is a higher degree of uncertainty in estimates for Northern Ireland, as indicated by larger credible intervals.*

**Figure 1: Modelled percentage of people testing positive for COVID-19 antibodies from a blood sample in NI**

07 December 2020 to 07 November 2021

Modelled estimates



Source: Office for National Statistics - Coronavirus (COVID-19) Infection Survey

### Notes:

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other communal establishments.
3. All estimates are subject to uncertainty, given that a sample is only part of the wider population. A credible interval gives an indication of the uncertainty of an estimate from data analysis.
4. The Northern Ireland population used in this analysis relates to aged 16 years and over living in private households. It is not the same as the total population of NI which is reported in the official mid-year population estimates.
5. The denominators used for vaccinations are the total people in the sample at that particular time point, then post-stratified by the mid-year population estimate.

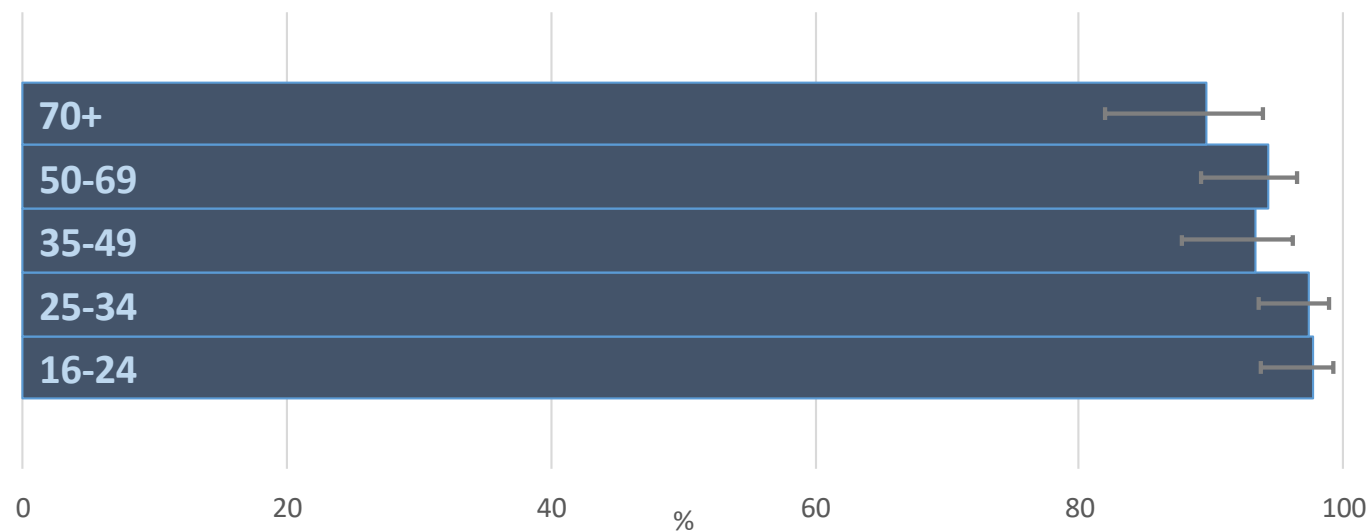
## Antibody data by age for Northern Ireland

In Northern Ireland, in the week beginning 1<sup>st</sup> November 2021, the percentage of adults aged 16 to 69 testing positive for antibodies ranged from 93.3% to 97.7%; for those 70 years and over it was 89.7% (95% credible interval: 81.9% to 93.9%). Modelled daily estimates by age over time are set out in Appendix 2.

*Credible intervals are wide and the sample sizes relatively small, meaning there is greater uncertainty in these figures.*

**Figure 2: Modelled percentage of people testing positive for COVID-19 antibodies by age - NI**

01 November 2021 to 07 November 2021



Age band	% testing positive for COVID-19 antibodies	95% lower credible interval	95% upper credible interval
16-24	97.7%	93.7%	99.2%
25-34	97.4%	93.6%	98.9%
35-49	93.3%	87.8%	96.2%
50-69	94.3%	89.3%	96.6%
70+	89.7%	81.9%	93.9%

*In the data used to produce estimates for Wales, Northern Ireland and Scotland, the number of people sampled who tested positive for antibodies to SARS-CoV-2 or who have been vaccinated is low compared with England. This means there is a higher degree of uncertainty in estimates for these nations when our analysis splits the sample into smaller groups (for example, age groups) as indicated by larger credible intervals.*

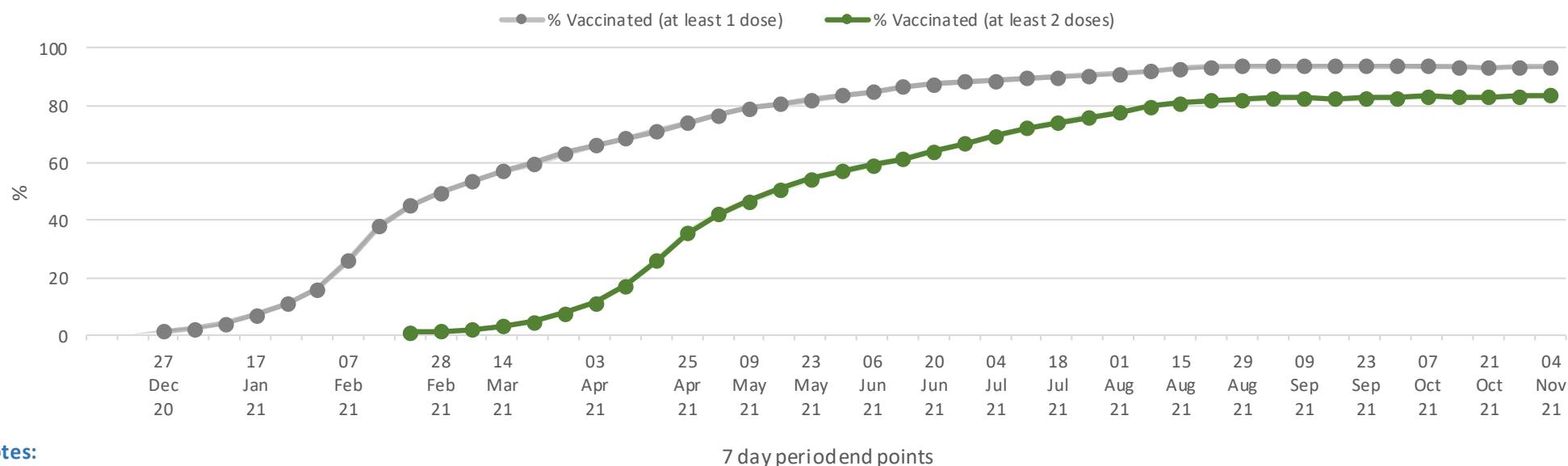
*Please note that this survey does not include those that live in care homes, one of the priority groups identified by the Joint Committee on Vaccination and Immunisation (JCVI). As such, the true figure amongst the older age groups in the population may be different.*

## Vaccination data for Northern Ireland

This section contains estimates based on self-reported vaccines from the COVID-19 Infection Survey, which does not include people living in communal establishments, such as care homes (which have been a priority for vaccination). These estimates are not the same as the official published figures on recorded vaccinations and there may be differences between the modelled estimates and the official figures (which should give a more precise count of total vaccines issued). The estimates produced from the survey provide context and are helpful to compare with other characteristics such as testing positive for antibodies. Analysis will be further developed as more data becomes available.

The survey shows that in Northern Ireland, an estimated 93.4% (95% credible interval: 92.7% to 94.1%) of the adult population have been vaccinated (i.e. who have received at least one dose) against SARS-CoV-2 in the week 1<sup>st</sup> November – 7<sup>th</sup> November 2021. The proportion who have received two or more doses is estimated to be 83.5% (95% credible interval: 82.5% to 84.5%).

**Figure 3: Modelled estimates of vaccination – NI**



**Notes:**

1. All results are provisional and subject to revision.
2. These statistics refer to vaccinations in individuals living in the community i.e. private households. These figures exclude individuals in hospitals, care homes and/or other institutional settings.
3. All estimates are subject to uncertainty, given that a sample is only part of the wider population. A credible interval gives an indication of the uncertainty of an estimate from data analysis. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.
4. The denominators used for vaccinations are the total people in the sample at that particular time point, then it is post-stratified by the mid-year population estimate.
5. Whilst it would be expected that the overall trend of the estimated number of people who have received vaccines to increase, it is possible that in some weeks, the estimate may remain the same or decrease as a result of sampling variability (for example, we may have a lower number of participants recording a vaccination in the latest week compared with an earlier week).

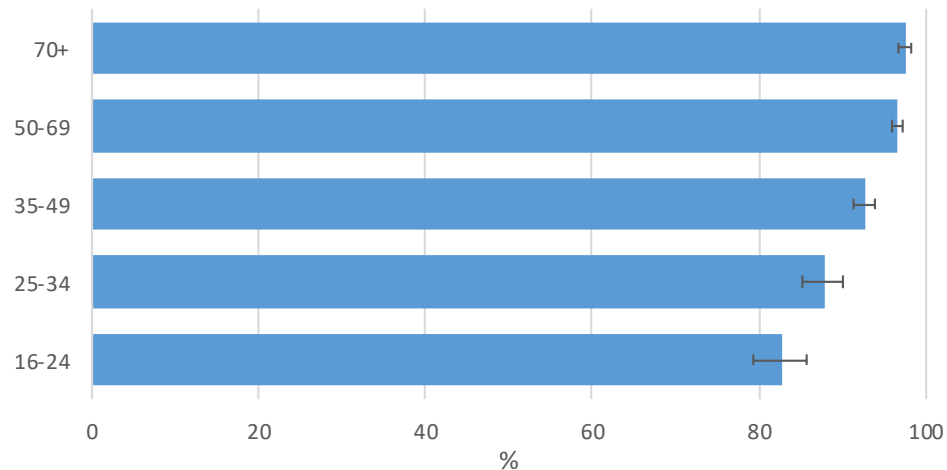
## Vaccination data by age for Northern Ireland

In Northern Ireland, in the week beginning 1<sup>st</sup> November 2021, the percentage of people who have been vaccinated against SARS-CoV-2 (at least one dose) aged 70 years and over was 97.5% (95% credible interval: 96.7% to 98.2%). The percentage of people in the other age groups that had received at least one dose of a vaccine ranged from 82.7% to 96.6%. The percentage of people aged 70 years and over that had received two or more doses in the week beginning 1<sup>st</sup> November 2021, was 92.9% (95% credible interval: 91.4% to 94.2%). The percentage of people in the other age groups that had received two or more doses ranged from 51.2% to 89.4%. Charts on the following page show vaccinations in each age band over time.

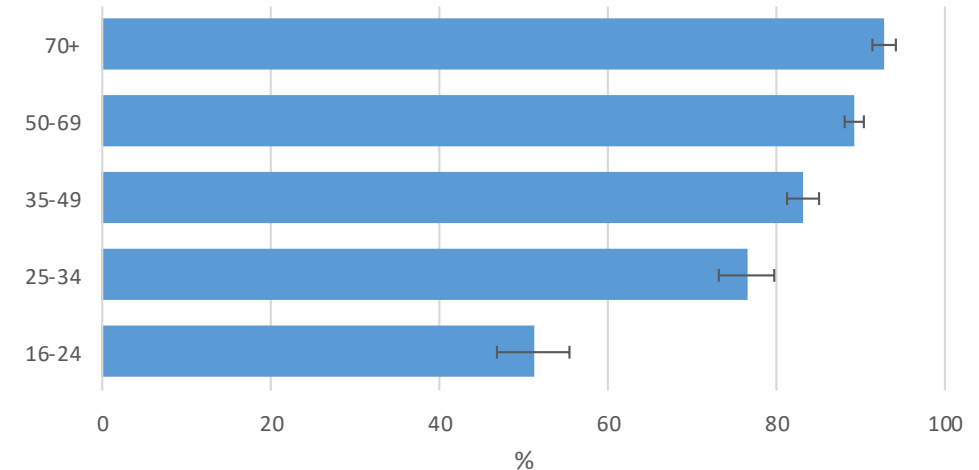
### Figure 4a & 4b: Modelled percentage of people that have received COVID-19 vaccine by age in Northern Ireland

01 November 2021 to 07 November 2021

% reporting that have received at least 1 vaccination dose  
Modelled estimates



% reporting that have received at least 2 vaccination doses  
Modelled estimates



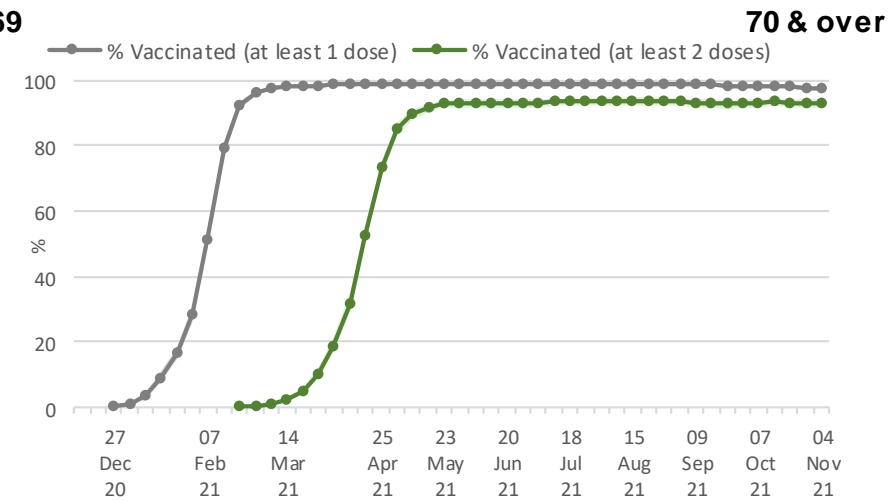
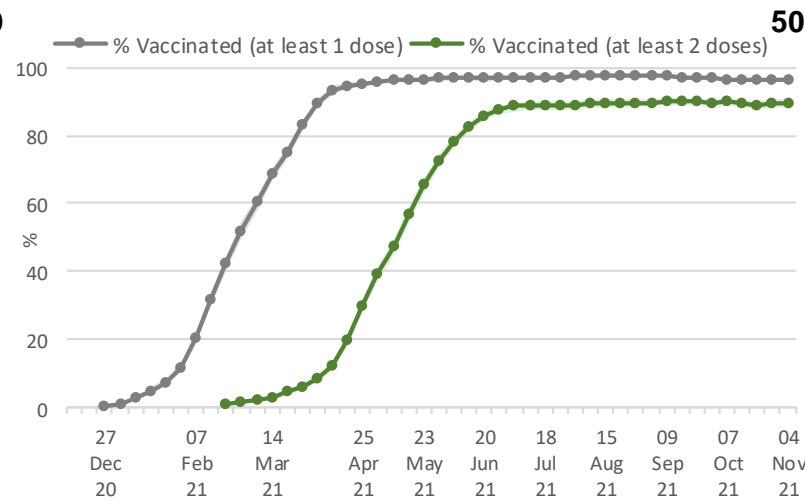
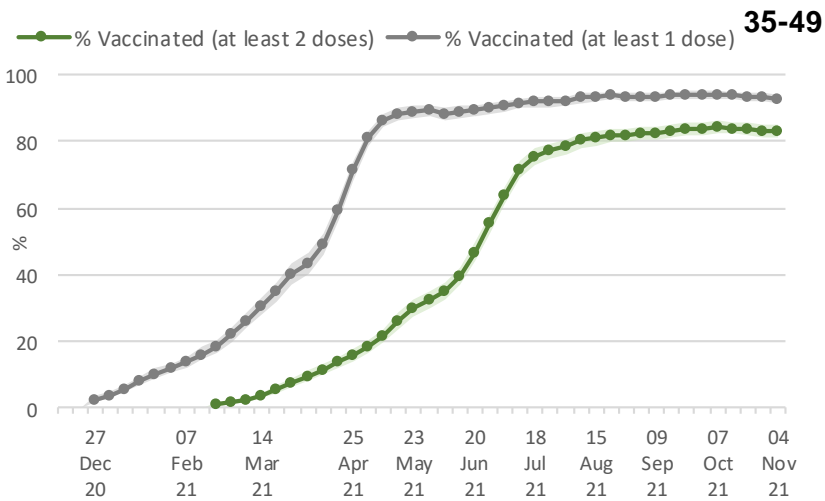
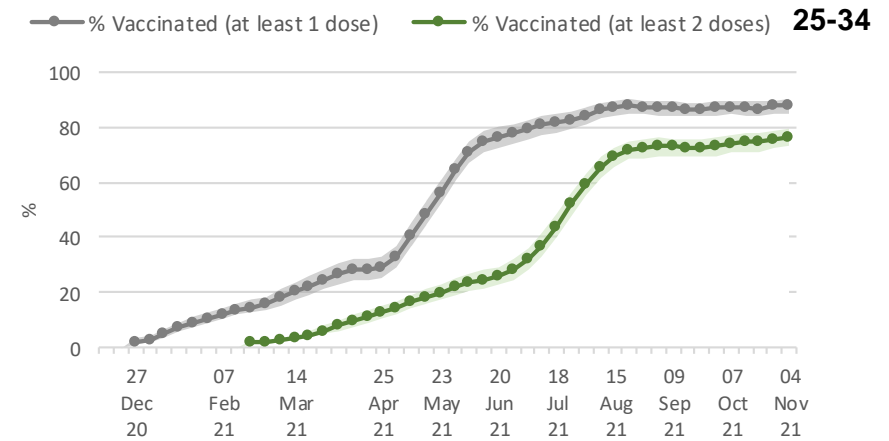
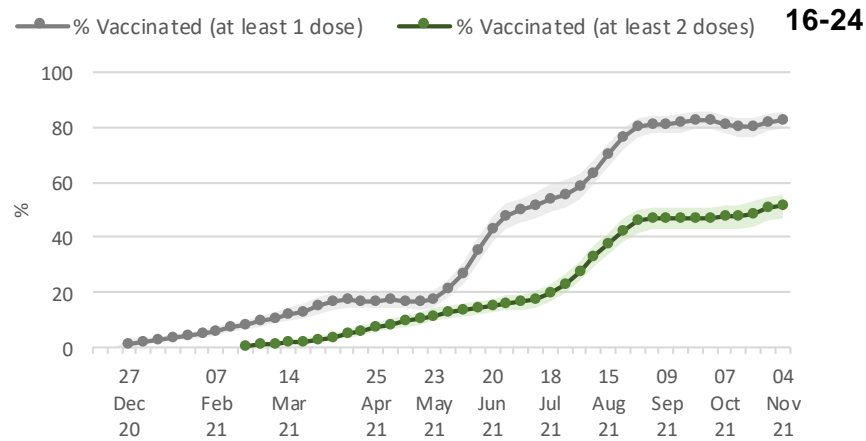
*Please note that this survey does not include those that live in care homes, one of the priority groups identified by the Joint Committee on Vaccination and Immunisation (JCVI). As such, the true figure amongst the older age groups in the population may be different. Also credible intervals are wide and the sample sizes relatively small, meaning there is greater uncertainty in these figures.*

# Vaccination data by age for Northern Ireland

The charts below outline vaccinations in each age group over time.

**Figure 5: Modelled estimates of vaccination by age group – Northern Ireland**

Data from 21 December 2021 to 07 November 2021



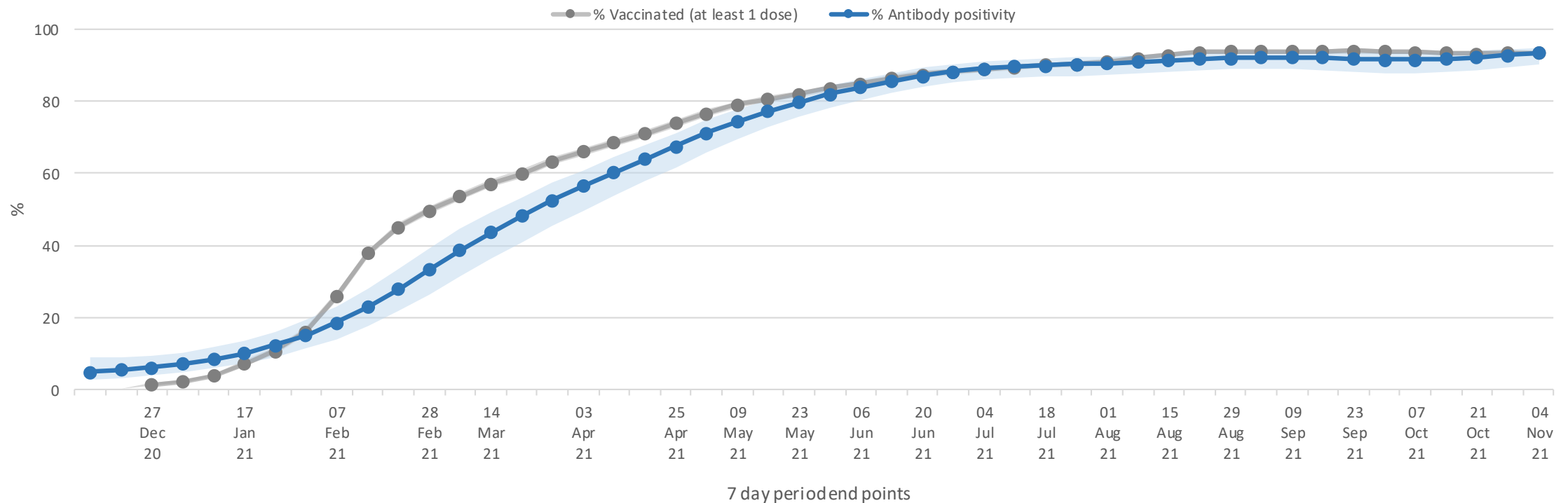
*Credible intervals are wide and the sample sizes relatively small, meaning there is greater uncertainty in these figures.*



## Antibody and vaccination data for Northern Ireland

Figure 6 below shows the modelled estimates of the percentage of people that have received one or more dose of a COVID-19 vaccine alongside the estimates of people testing positive for antibodies. Modelled estimates of vaccination and antibody positivity by age-group are set out in Appendix 3.

**Figure 6: Modelled % of people that have received one or more doses of a COVID-19 vaccine and of people testing positive for antibodies to SARS-CoV-2**



There is a clear pattern between vaccination and testing positive for COVID-19 antibodies however the detection of antibodies alone is not a precise measure of the immunity protection acquired from vaccination. More detail on antibodies and immunity is outlined on page 2 and further information can be found in the ONS [blog on antibodies and immunity](#).

## Antibody and vaccination data across the UK

In the week beginning 1 November 2021, the percentage of adults testing positive for antibodies remained high across the UK.

Week beginning 1 <sup>st</sup> Nov 2021	Estimated % of adults who would have tested positive for COVID-19 antibodies	95% lower credible interval	95% upper credible interval
England	92.8%	91.6%	93.9%
Wales	91.4%	89.7%	92.9%
Scotland	92.5%	91.1%	93.7%
<b>Northern Ireland</b>	<b>93.3%</b>	<b>90.2%</b>	<b>94.9%</b>

In the week beginning 1 November 2021, estimates suggest the percentage of adults who reported they had received at least one dose of a COVID-19 vaccine remained high, ranging from 93.1% to 95.8% of adults across the UK. The estimated percentage of adults in the UK who had received two or more doses of a COVID-19 vaccine also remained high or continued to increase, ranging from 83.5% to 89.8% of adults across the UK in the week beginning 1 November 2021.

Week beginning 1 <sup>st</sup> Nov 2021	Estimated % of adults vaccinated for COVID-19 (at least one dose)	95% lower credible interval	95% upper credible interval	Estimated % of adults vaccinated for COVID-19 (two or more doses)	95% lower credible interval	95% upper credible interval
England	95.8%	94.5%	96.7%	89.8%	86.2%	92.6%
Wales	94.1%	91.0%	96.4%	88.6%	84.0%	92.1%
Scotland	93.1%	88.6%	96.4%	88.3%	83.3%	92.4%
<b>Northern Ireland</b>	<b>93.4%</b>	<b>92.7%</b>	<b>94.1%</b>	<b>83.5%</b>	<b>82.5%</b>	<b>84.5%</b>

*Please note these estimates are not the same as the official published figures on recorded vaccinations and there may be differences between the modelled estimates and the official figures, which are a more precise count of total vaccines issued.*

## Antibody and vaccination data by grouped age across the UK

In the week beginning 1 November 2021, the percentage of adults testing positive for coronavirus (COVID-19) antibodies remained high across all age groups and increased in those aged over 70 years across the UK, likely as a result of the vaccination booster programme.

It is important to note that antibody positivity is defined by a fixed concentration of antibodies in the blood. Most people who are vaccinated will retain higher antibody levels than before vaccination but may have antibodies below the threshold used at the time of testing. This does not mean that these people have no protection against new infection. More detail on antibodies and immunity is outlined on page 2 and further information can be found in the ONS [blog on antibodies and immunity](#).

The percentage of adults who reported they have received at least one dose of a coronavirus (COVID-19) vaccine is lowest in the younger age groups but is still high. Across the UK, the estimated percentage of adults aged 16 to 24 years who have received one or more doses of a COVID-19 vaccine ranged from 78.9% to 85.6%; this has increased sharply since the end of June 2021.

*The percentage of adults testing positive for antibodies varies by age group between the four nations of the UK. This could be explained by different historical trends in COVID-19 infection rates and the approaches to vaccine distribution in different nations. This survey does not include people who live in care homes, one of the priority groups identified by the [Joint Committee on Vaccination and Immunisation \(JCVI\)](#).*

## Appendix 1a - Antibody data over time for Northern Ireland (notes on next page)

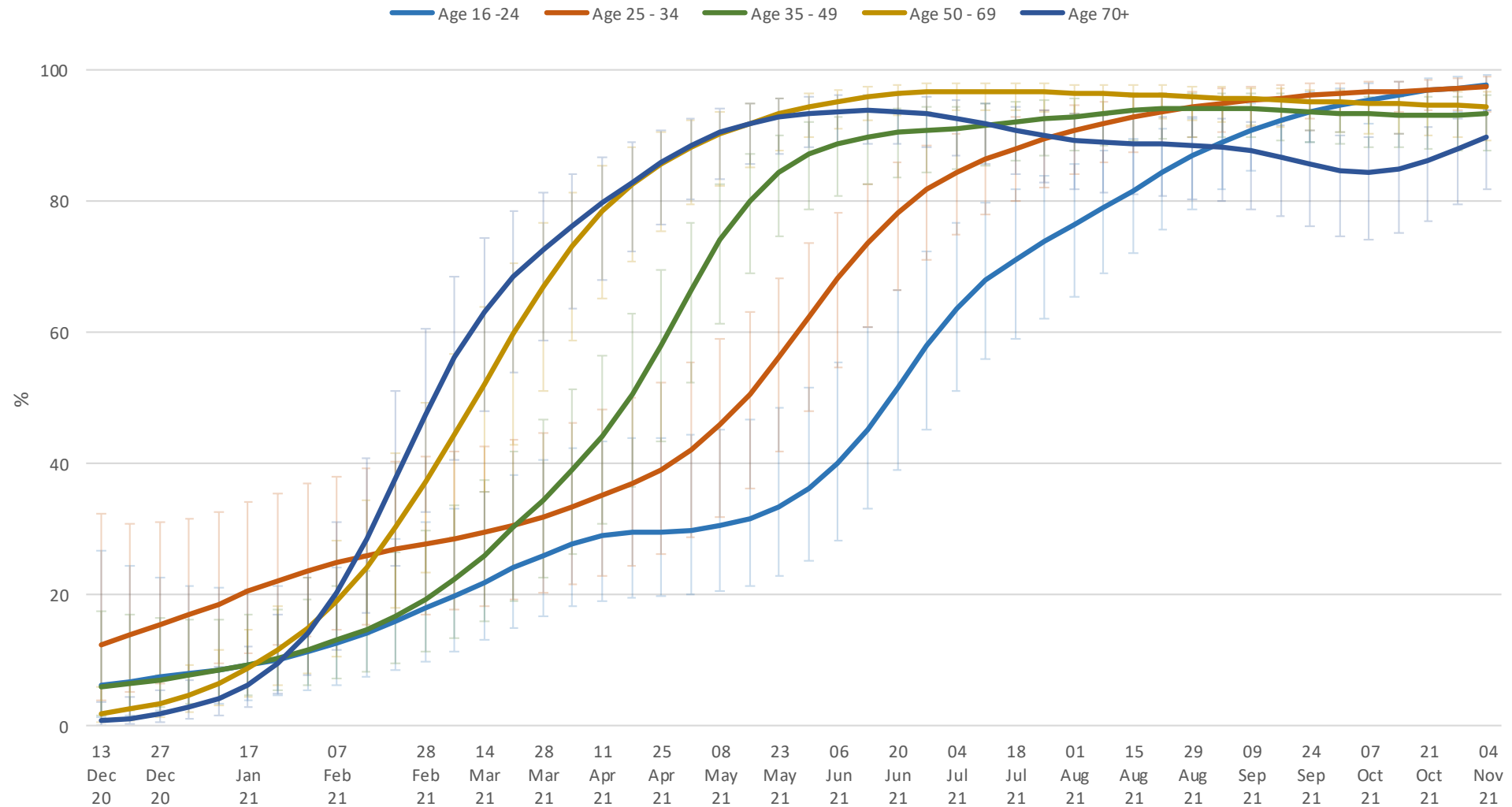
Week ending	Modelled % testing positive for COVID-19 antibodies	95% lower credible interval	95% upper credible interval	Week ending	Modelled % testing positive for COVID-19 antibodies	95% lower credible interval	95% upper credible interval	Week ending	Modelled % testing positive for COVID-19 antibodies	95% lower credible interval	95% upper credible interval
13 Dec 2020	4.9%	2.5%	8.9%	02 May 2021	71.1%	65.7%	74.7%	19 Sep 2021	92.0%	88.7%	93.8%
20 Dec 2020	5.5%	3.1%	9.1%	09 May 2021	74.4%	69.5%	77.6%	26 Sep 2021	91.8%	88.2%	93.6%
27 Dec 2020	6.2%	3.9%	9.5%	16 May 2021	77.3%	72.9%	80.1%	03 Oct 2021	91.6%	87.8%	93.5%
03 Jan 2021	7.2%	4.8%	10.3%	23 May 2021	79.8%	75.7%	82.4%	10 Oct 2021	91.5%	87.7%	93.4%
10 Jan 2021	8.4%	6.0%	11.6%	30 May 2021	82.0%	78.2%	84.5%	17 Oct 2021	91.7%	88.0%	93.6%
17 Jan 2021	10.1%	7.4%	13.4%	06 Jun 2021	83.8%	80.2%	86.2%	24 Oct 2021	92.1%	88.6%	93.9%
24 Jan 2021	12.3%	9.1%	15.9%	10 Jun 2021	85.5%	82.2%	87.8%	31 Oct 2021	92.7%	89.5%	94.4%
31 Jan 2021	15.1%	11.3%	19.1%	20 Jun 2021	87.0%	83.8%	89.2%	07 Nov 2021	93.3%	90.2%	94.9%
07 Feb 2021	18.6%	14.1%	23.2%	27 Jun 2021	88.2%	85.0%	90.2%				
14 Feb 2021	22.9%	17.5%	28.0%	04 Jul 2021	89.0%	85.9%	91.0%				
21 Feb 2021	27.9%	21.7%	33.5%	11 Jul 2021	89.6%	86.5%	91.5%				
28 Feb 2021	33.3%	26.5%	39.2%	18 Jul 2021	89.9%	86.7%	91.8%				
07 Mar 2021	38.6%	31.4%	44.4%	25 Jul 2021	90.2%	87.0%	92.1%				
14 Mar 2021	43.6%	36.2%	49.1%	01 Aug 2021	90.5%	87.2%	92.3%				
21 Mar 2021	48.3%	40.8%	53.5%	08 Aug 2021	90.9%	87.6%	92.7%				
28 Mar 2021	52.5%	45.4%	57.4%	13 Aug 2021	91.3%	88.1%	93.1%				
03 Apr 2021	56.5%	49.7%	60.9%	22 Aug 2021	91.7%	88.6%	93.4%				
11 Apr 2021	60.2%	53.7%	64.6%	29 Aug 2021	92.0%	88.9%	93.7%				
18 Apr 2021	63.9%	57.7%	67.9%	05 Sep 2021	92.2%	89.0%	93.8%				
25 Apr 2021	67.4%	61.6%	71.3%	12 Sep 2021	92.2%	88.8%	93.9%				

## Appendix 1b - Antibody data over time for Northern Ireland notes

1. All results are provisional and subject to revision.
2. These statistics refer to infections reported in the community, by which we mean private households. These figures exclude infections reported in hospitals, care homes and/or other institutional settings.
3. All estimates are subject to uncertainty, given that a sample is only part of the wider population. A credible interval gives an indication of the uncertainty of an estimate from data analysis. 95% credible intervals are calculated so that there is a 95% probability of the true value lying in the interval.
4. The Northern Ireland population used in this analysis relates to the community population aged 16 years and over. It is not the same as the total population of NI which is reported in the official mid-year population estimates.
5. To provide the most timely and accurate estimates possible for antibody positivity, the most recent week will include data for the first four to seven days of the week, depending on the availability of test results.

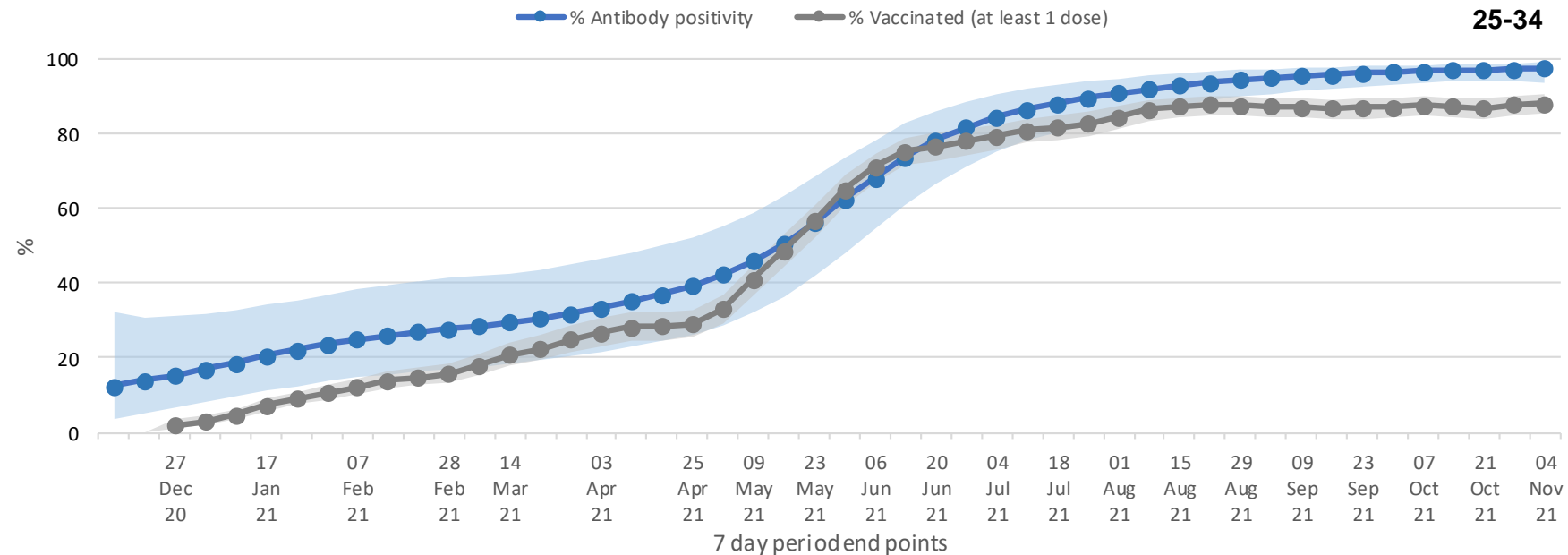
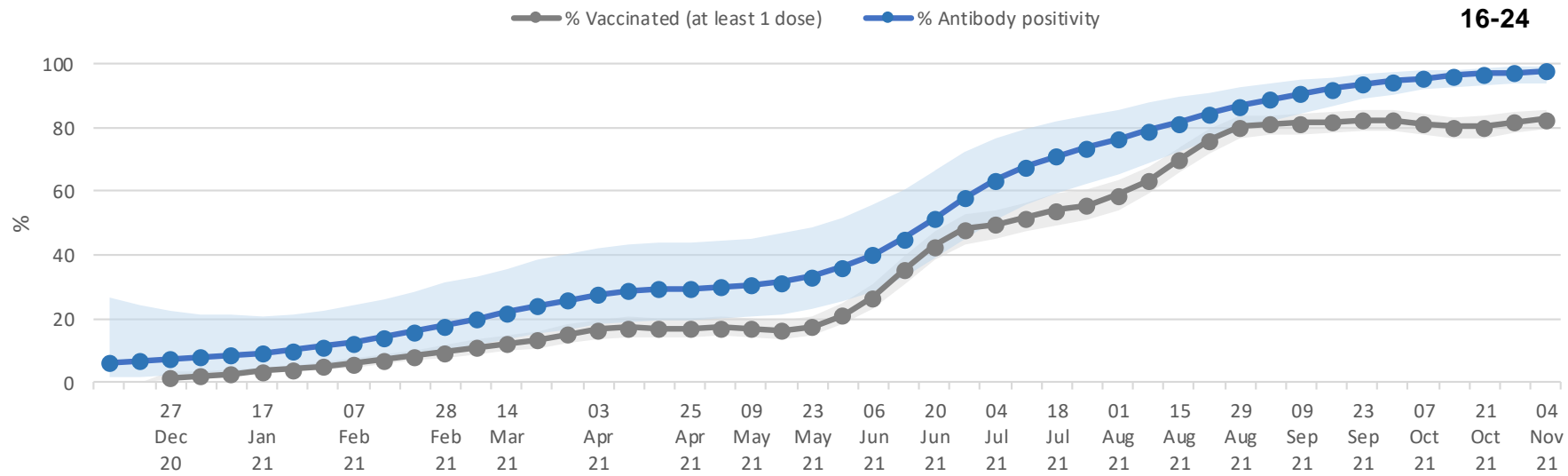
## Appendix 2 - Age over time analysis on the likelihood of testing positive for COVID-19 antibodies

% of the NI population testing positive for antibodies against SARS Covid-19 by age  
Modelled estimates

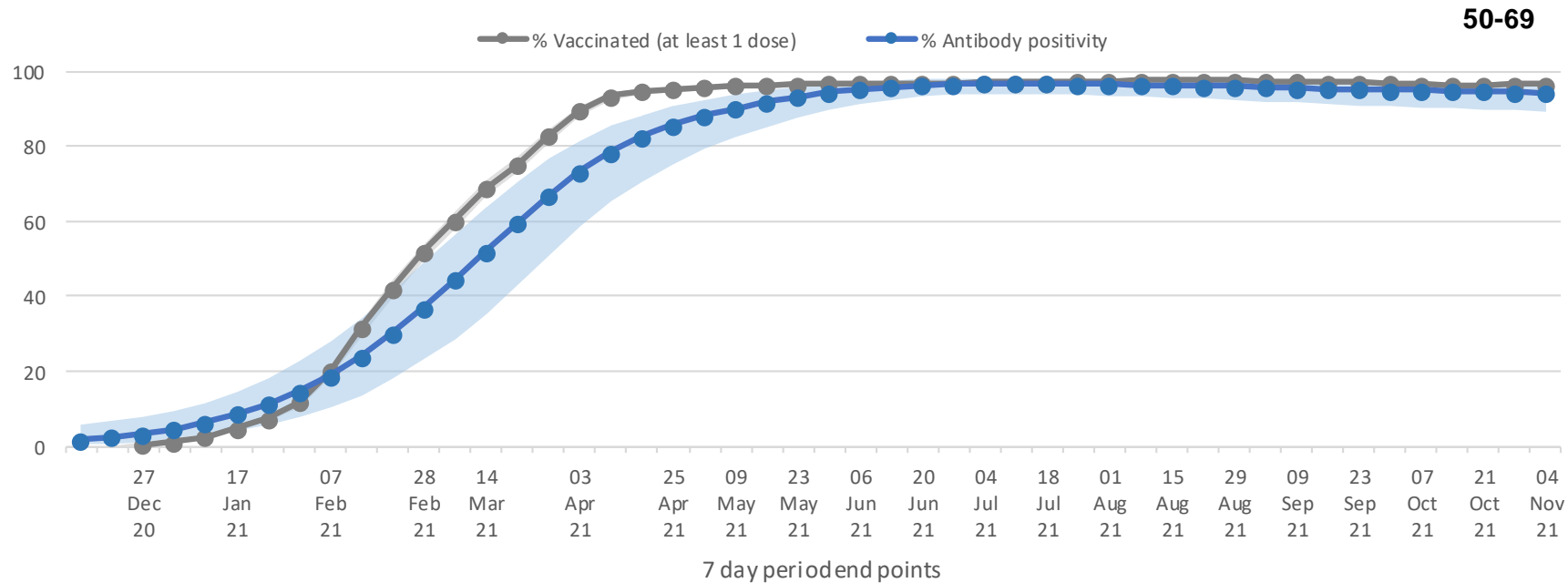
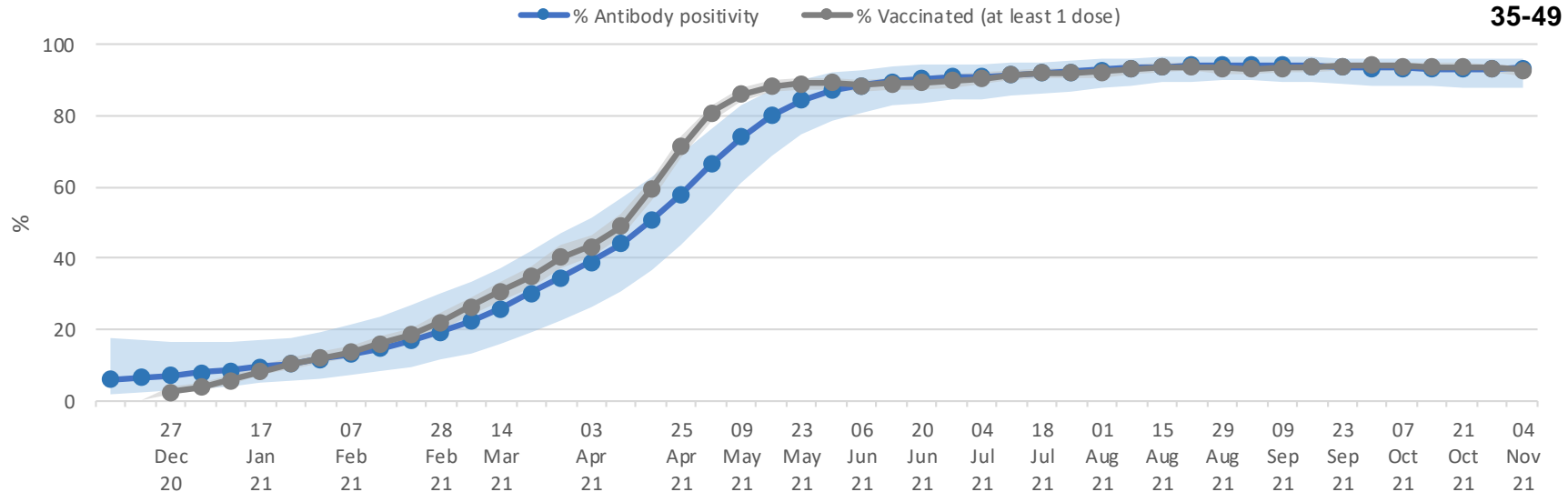


# Appendix 3 - Age over time analysis on vaccination and antibody positivity

## Vaccination (at least 1 dose) and antibody positivity - Northern Ireland

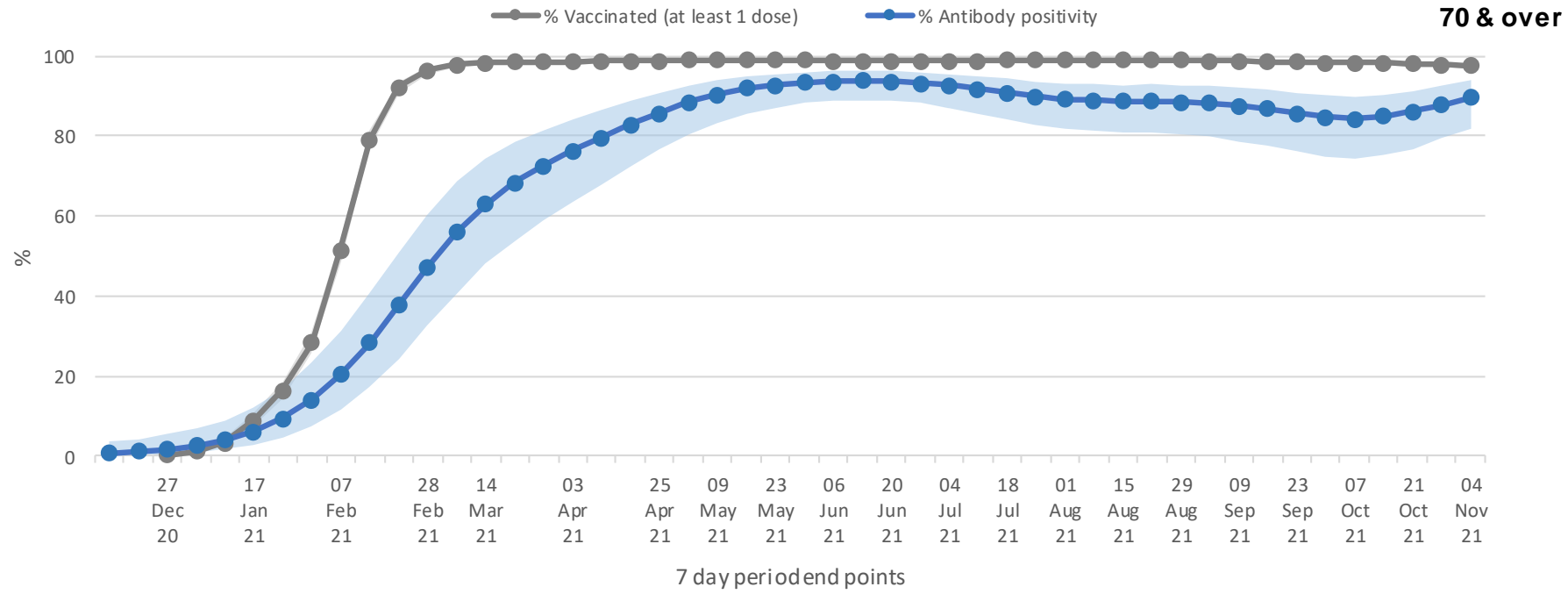


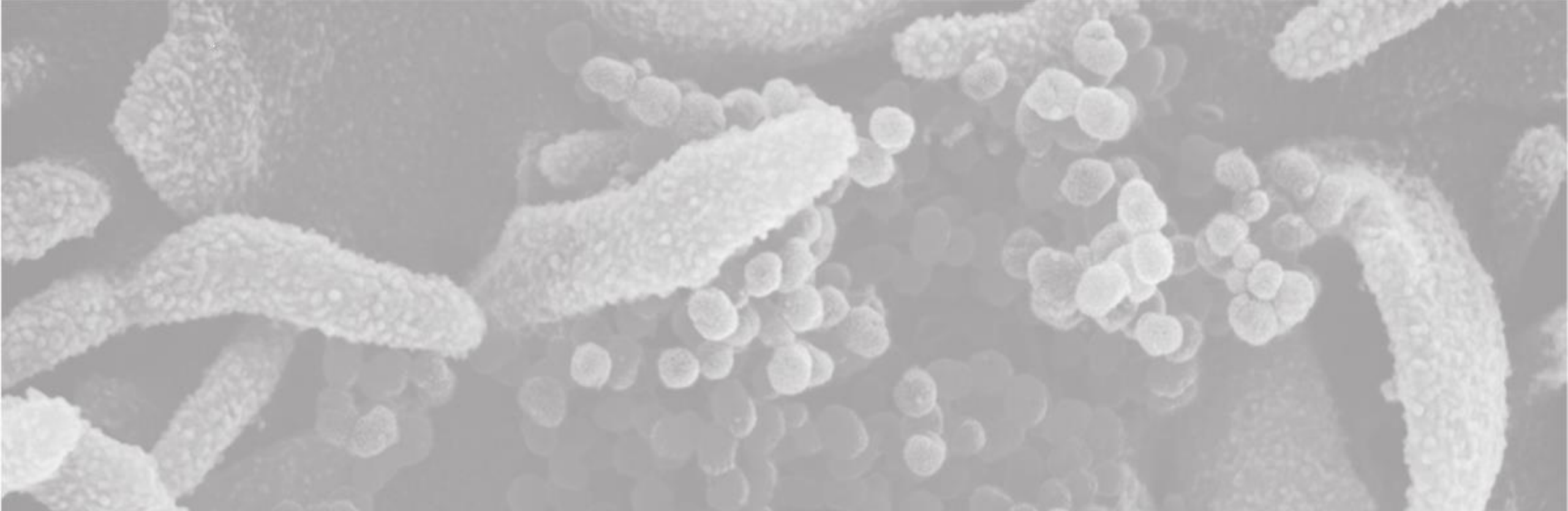
# Vaccination (at least 1 dose) and antibody positivity - Northern Ireland





# Vaccination (at least 1 dose) and antibody positivity - Northern Ireland





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